CLAIMS

I claim:

1. An in situ desalinating system comprising a multiplicity of distributively arranged individual desalinating units for continually removing saline content from field surface water, said units being floatable on said field surface water, each said unit comprising a wicking structure including a wick having a lower end portion immersed in said field water and an upper end portion, a solar energy collection structure circumjacent said wick upper end portion including a primary mirror adapted to collect incident solar energy and redirect it to the upper end portion of said wick in wick-contained water evaporating relation, and an evaporated water collector arranged to condense evaporated water in saline content-free relation and return said condensed water to said field water.

2. The desalinating system according to claim 1, in which said wicking structure comprises a bracket arranged to support said wick within said unit, said primary mirror being supported by said bracket.

3. The desalinating system according to claim 2, in which said water collector comprises a light-passing dome opposing said primary mirror and adapted to pass incident solar radiation to said primary mirror, and including also a secondary mirror enclosed by said dome and arranged to redirect solar energy reflected upward by said primary mirror onto said wick upper end portion.

4. The desalinating system according to claim 3, in which said dome defines a condensed water flow paths from said dome to said field water.

5. The desalinating system according to claim 4, in which said wick is removable from said bracket and returnable thereto in saline content-cleansed relation.

6. The desalinating system according to claim 1, in which said solar collection structure includes a lens opposite said primary mirror that reemits all angles of incident light from said lens primarily normal to said lens.

7. The desalinating system according to claim 6, in which said solar collection structure lens is a source of lambertian light within said dome.

8. An in situ desalinating system comprising a multiplicity of hand-carryable, distributively arranged individual desalinating units for continually removing saline content from field surface water, said units being floatable on said field surface water, each said unit comprising a wicking structure including a wick having a lower end portion immersed in said field water and an upper end portion out of said field water, a solar energy collection structure circumjacent said wick upper end portion including a lens and primary mirror system adapted to collect incident solar energy and redirect it to the upper end portion of said wick in wick-contained water evaporating relation, and an evaporated water collector including a cover above said wick upper end portion arranged to condense evaporated water in saline content-free relation and return said condensed water to said field water circumjacently of said wick, said cover defining said solar collection lens.

9. The desalinating system according to claim 8, in which said wicking structure comprises a bracket arranged to support said wick vertically disposed within said unit, said primary mirror being supported by said bracket.

10. The desalinating system according to claim 9, in which said water collector comprises a light-passing dome, said dome defining said solar collection structure lens, said lens opposing said primary mirror and being adapted to pass incident solar radiation to said primary mirror, and a secondary mirror arranged within said dome lens to redirect solar energy reflected upward by said primary mirror onto said wick upper end portion.

11. The desalinating system according to claim 10, in which said dome defines condensed water flow paths from said dome past said primary mirror and to said field water.

12. The desalinating system according to claim 11, in which said wick is demountable from said bracket and remountable thereto in saline content-cleansed relation.

13. The desalinating system according to claim 12, in which said dome-defined solar collection structure lens reemits all angles of incident light from said lens primarily normal to said lens.

14. The desalinating system according to claim12, in which said dome-defined solar collection structure lens is a source of lambertian light within said dome.

15. An in situ desalinating system comprising a desalinating unit for continually removing saline content from field surface-disposed saline water, said

unit being floatable on field surface water and comprising a housing having a solar heat energy-passing, water-impervious wall defining a generally closed chamber having a lower portion adapted for contact with said saline field surface water and an upper portion generally out of contact with said field water, a saline water collection structure within said chamber supported by said housing for saline water immersion, reflector structure arranged to concentrate solar heat energy passed into said housing and to direct said concentrated energy to said water collection structure for heating saline water collected in said collection structure to temperatures increasing the rate of water evaporation, said evaporated water being condensed within said chamber upper portion for return to said field surface water, said housing defining a condensed water return path to said field surface water, whereby saline water is returned to said field surface water with lowered saline content in field surface water saline content-ameliorating relation.

16. The desalinating system according to claim 15, in which said chamber upper portion comprises a translucent material having a downwardly open shape arranged on said chamber lower portion to oppose said field surface water.

17. The desalinating system according to claim 16, in which said translucent material is light diffusing and arranged to reemit all kinds of incident light primarily normal to said material.

18. The desalinating system according to claim 17, in which said translucent material is a source of lambertian light.

19. The desalinating system according to claim 15, in which said unit is hand-carryable and in water-free condition weighs less than about 10 pounds.

20. The desalinating system according to claim 15, in which said unit has a height of less than about 18 inches, and a width of less than about 18 inches.

21. The desalinating system according to claim 15, in which said water collection structure comprises a wick and a wick support mounted within the lower portion of said chamber.

22. The desalinating system according to claim 15, in which said wick comprises a fibrous member adapted to wicking water vertically from an immersed end upward.

23. The desalinating system according to claim 22, in which said fibrous member is impervious to corrosion from salt.

24. An in situ desalinating system comprising a multiplicity of hand-carryable, distributively arranged individual desalinating units for continually removing saline content from field surface water, said units being floatable on said field surface water, each said unit comprising within a chamber a wicking structure including a wick support and a wick supported by said wick support in extended relation, said wick having a lower end portion immersed in said field water and an upper end portion out of said field water, a solar energy collection structure circumjacent said wick upper end portion including lens and mirror system arranged to collect incident solar energy and redirect it to the upper end portion of said wick in wick-contained water evaporating relation, and an

evaporated water collector including a cover above said wick upper end portion arranged to condense evaporated water in saline content-free relation and return said condensed water to said field water circumjacently of said wick.

25. The desalinating system according to claim 24, in which said wick support comprises a bracket extended along said wick in supporting relation, said bracket exposing said wick within said chamber in concentrated solar heat energy-receiving relation.

26. The desalinating system according to claim 25, in which said chamber has a wall defining said lens.

27. The desalinating system according to claim 26 in which said lens comprises a lambertian light source.

28. The desalinating system according to claim 24, in which said chamber has a lower portion and said solar energy collection structure further includes a reflector primary mirror comprising a mirrored web extending transversely across said chamber lower portion in spaced relation to said field surface water and a secondary mirror opposite said web for redirecting reflected solar radiation from said web onto said wick upper end, said web defining said wick support bracket.

29. The desalinating system according to claim 28, in which said web has an upward facing surface that defines said primary mirror, said primary mirror being arranged to concentrate solar heat energy passing into said housing onto said primary mirror, and a secondary mirror, said secondary mirror being

opposite to and spaced above said wick upper end and arranged to reflect solar energy onto said wick.

30. The desalinating system according to claim 28, in which said bracket is disposed centrally of said chamber, said web extending radially thereof, whereby said wick is surrounded by said primary mirror, said primary mirror and secondary mirror being relatively arranged to concentrate solar heat energy onto exposed portions of said wick upper end in said bracket.

31. An in situ desalinating system comprising a multiplicity of distributively arranged individual desalinating units for continually removing saline content from field surface disposed saline water, said units being hand-carryable and floatable on field surface water and comprising a housing having a solar heat energy-passing, water-impervious translucent plastic wall defining a generally closed chamber having a generally cylindrical lower portion adapted for contact with said saline field surface water and a parabolically shaped upper portion, a light energy collection and redirection structure comprising a primary mirror-defining web disposed transversely of said housing and an opposing secondary mirror above said primary mirror arranged to direct incident solar energy to a predetermined locus, said web having a central opening, a saline water collection structure comprising a fibrous wick having an upper end and a lower end and sized to be supported in said web opening, said web carrying said wick with its lower end arranged for immersion in saline field water and its upper end at said predetermined locus for heating saline water collected in said collection structure to temperatures at which evaporation of said water is increased, said evaporated

water being condensed against said chamber upper portion for return along said wall to said field surface water, said housing lower portion and said web defining a condensed water return path to said field surface water, whereby saline water is returned to said field surface water with lowered saline content in field surface water saline content-ameliorating relation.

32. The in situ desalinating system according to claim 31 in which said wall defining said chamber upper portion is light-diffusing and provides lambertian light within said chamber upper portion.

33. A method of desalinating agricultural water in a field, including disposing a plurality of desalinating units upon said field water, maintaining in each said unit a wicking structure including a wick lower end immersed in said water and an upper end in wicking communication with said wick lower end, providing a primary mirror in each unit adapted to reflect solar radiation incident upon said unit onto said wick upper end, evaporating from said wick upper end solar distilled water, and returning said solar-distilled water to said field water while retaining the saline content of said water in said wick.

34. The method according to claim 33, including also separating said wick from said wicking structure, cleansing said wick of accumulated salts, and reusing said wick to collect saline content from standing water.

35. The method according to claim 33, including also floating said units upon said field water.

36. The method according to claim 33, including also maintaining a translucent cover above said wick upper end, and condensing said evaporated

water on the underside of said cover, said cover being shaped to return said condensed water to said field water away from said wick.